EPA & Pavillion - Jan. 23 & 24

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01/23/2013	What's the fuss about fracking?	Fort Collins Coloradoan - Online, The
01/23/2013	Chesapeake to Host EPA In Study of Fracking Risk	Wall Street Journal - Online

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What's the fuss about fracking?
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As the discussion heats up, here's what you should know about Northern Colorado's hot topic.

Portable water tanks are lined near homes at a fracking site near Geleton in Weld County on March 7, 2012. / V. Richard Haro/Coloradoan library

Where to learn more about fracking

University of Colorado s Intermountain Oil and Gas Best Management Practices Project: http://www.oilandgasbmps.org/resources/fracing.php

U.S. Environmental Protection Agency: www.epa.gov/hydraulicfracture/

Colorado Oil and Gas Conservation Commission: http://bit.ly/107Rf94

Colorado Oil and Gas Association: www.coga.org/index.php/Hydraulic%20Fracturing

Western Resource Advocates: www.westernresourceadvocates.org/frackwater/

ProPublica: www.propublica.org/series/fracking

Examples of fracking in Northern Colorado

When Anadarko s Pinnacle 2-2HZ oil and gas well was fracked between Dacono and Interstate 25 in 2011, the company reported to FracFocus.com that it used 2.8 million gallons of water to fracture a formation about 7,600 feet underground. Thirty different ingredients were used, including 14 listed as proprietary, information about which is unavailable to the public.

When Prospect Energy fracked the Hearthfire #1 oil well just steps from Fort Collins city limits last October, it reported to FracFocus.com that it used about 111,000 gallons of water, fracking the 4,868 feet beneath the surface. Seven chemicals were used, including a surfactant composed of 4-nonylphenyl, methanol, polyoxyethylene and other substances; a biocide; a frac gel made of guar; and several other chemicals.

Facebook.com/coloradoan followers sound off

On Jan. 15, we asked: How do you feel about fracking in our area?

I think people should do their research on the effects of fraking before they jump to conclusions about the negative effects. Natalie Martin

Absolutely against it. The extraction process has been proven to be just dirty as coal burning and is toxic to humans and wildlife alike. Deb Hochhalter

A healthy community is critically important to me. That means good air, water and land. No one knows what is in the fracking fluid except the few who aren't telling us. Once it's in the ground water, it's too late to be prudent. Kathryn

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Barrett

The Coloradoan is acting irresponsible in its reporting on fracking. Obviously pushing an agenda. This EVIL' fracking that you constantly report on creates tens of thousands of high paying, entry level jobs in Colorado. Justin Wilkes

Thanks to fracking, the United States is tied with Russia to be the No. 1 producer of natural gas in the world and (may) be able to gain oil independence. There are no conclusive studies that say that fracking causes any problems right now, only speculation. What we as a country must decide is whether it is worth the potential problems with groundwater contamination and possible shallow tremors to continue using the process. Personally, I think it is (OK) as long as the oil companies work to improve the process and make water contamination less likely. Toby Self

When the Coloradoan asked Facebook fans last week what they consider the top issues Fort Collins faces, one issue rose above all the rest: Fracking.

Hydraulic fracturing, or fracking, is the driving force behind nearly all oil and gas development in Colorado today, and the prime economic driver in Weld County. Advances in fracking technology have led to the Colorado oil and gas boom, making previously unreachable pockets of crude oil and natural gas economically lucrative to tap.

But as the industry pumps billions of dollars into the Colorado economy, oil and gas wells are coming closer to homes, public parks and schools, where some residents worry about what oil and gas development might mean for air and water quality, public health, property values and quality of life.

As the state is on the verge of implementing stricter oil and gas drilling regulations and the city of Fort Collins considers following Longmont in banning fracking within city limits, here s a look at some of the most common questions surrounding Northern Colorado s hot topic.

Common fracking questions

What is fracking?

Fracking is one of the most critical steps energy companies use to drill an oil and gas well. One of the final stages used in completing a well, fracking is a procedure used to crack open underground rock formations as a way to increase the flow of crude oil and natural gas to the surface. About 90 percent of all oil and gas wells are fracked today. The process is sometimes called hydrofracking or fracing.

How does fracking work?

First, an oil and gas well bore hole is drilled into the ground to a point underneath any groundwater aquifers used for drinking. The hole is lined with steel and cased in concrete to prevent chemicals from harming the groundwater. From there, a smaller hole is drilled an additional 5,000 feet or more beneath the surface to pockets of oil and gas. The smaller hole is lined with a steel casing and protected with cement.

Next, the casing is perforated around the oil-and-gas-bearing layers, often with explosives. Then, the fracking begins. Up to 5 million gallons of water, sand and chemicals are injected at high pressure into the well bore as a way to fracture the oil-and-gas-containing rock formations surrounding the holes created by the explosives. As the rock fractures, the cracks are propped open with sand, and the oil and gas begins to flow to the surface.

What are the economic benefits of fracking?

Because of fracking, the U.S. has a sufficient supply of natural gas for 110 years, and 7 billion barrels of oil are

considered recoverable within the country s borders, according to the U.S. Energy Information Administration.

The oil and gas industry was estimated to directly employ about 40,000 Coloradans in 2010 and supported about 107,000 jobs statewide, totaling about $31 billion in economic output annually, according to a University of Colorado-Boulder study.

Locally, oil and gas severance taxes paid to local cities and counties based on the number of workers living there and the industry s local impact have been increasing dramatically. Between 2011 and 2012, severance tax payments Fort Collins received increased 28.6 percent, totaling $131,551 in 2012, up from about $20,000 in 2007. Weld County received nearly $2.3 million in 2012, up from about $219,000 in 2007.

The city of Fort Collins estimates that the oil and gas industry generates more than $215,000 annually for the city.

What chemicals are in fracking fluids?

Chemicals used in each frack job vary. They usually include friction reducers, surfactants, gels, substances used to prop open cracks in the rock, radioactive tracers, antibacterial agents, corrosion inhibitors and other substances.

Some chemicals used for fracking are non-toxic, but others are considered toxic. For example, one chemical used to frack an Anadarko well in Weld County is used as an insecticide for crops and considered toxic by the U.S. Environmental Protection Agency.

How do energy companies help protect groundwater from fracking fluids?

Every time a well is drilled, the portion of the bore hole that passes through underground aquifers is cased with steel and concrete, preventing fluids from penetrating the bore hole and leaching into groundwater supplies.

Has fracking been found to contaminate groundwater supplies?

A 2011 Duke University study found systematic evidence of drinking water contamination associated with natural gas extraction in Pennsylvania.

The Associated Press reported on Jan. 16 that the EPA had evidence a Texas natural gas driller had contaminated a suburban water well near Fort Worth, but set aside evidence the driller had contaminated the water well after the driller threatened to refuse to cooperate in an EPA study about the impacts of fracking.

In 2011, the EPA studied water well contamination from energy development in Pavillion, Wyo., concluding that the contamination was linked to nearby natural gas extraction. The Associated Press reported that the oil and gas industry and Republican leaders attacked the study, and the agency decided to do more testing. The study is currently open for public comment.

Does fracking harm Colorado s air quality?

As fluids are removed from an oil and gas well that has just been fracked, large quantities of volatile organic compounds, methane, and air toxins such as benzene are produced, according to CU-Boulder s Intermountain Oil and Gas Best Management Practices Project. Those gases are often vented or flared, leading to regional air quality problems.

Industry efforts to use green completions aim to contain vented gas. Studies conducted by the Colorado School of Public Health and CU-Boulder suggest that air quality has been affected by pollutants traced to oil and gas wells and fracking.

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Is fracking exempt from environmental laws?

Yes. The 2005 Energy Policy Act exempted hydraulic fracturing from regulation by the U.S. Environmental Protect Agency under the Safe Drinking Water Act.

How close is fracking coming to Fort Collins?

Fracking has occurred as recently as October in the Fort Collins oil field on the northern edge of the city in and around the Hearthfire subdivision. Fracking occurs more frequently in Weld County near Windsor, Ault and Severance.

Does fracking cause earthquakes?

A 2012 University of Texas-Austin study connected oil and gas wastewater injection wells to small earthquakes in Texas. Deep underground fluid injection wells have been found to to cause earthquakes in Colorado, but data is inconclusive about wether injection of fracking fluids could cause earthquakes here. Despite Northern Colorado being one of the most heavily drilled and fracked places in the West, earthquakes of any magnitude are extremely rare here.

Sources: FracFocus.com; Colorado Oil and Gas Association; Intermountain Oil and Gas BMP Project at the University of Colorado Law School, U.S. Geological Survey, Colorado Geological Survey, University of Texas, and Colorado Department of Local Affairs.

What the science says

A handful of studies have been conducted over the last decade on how oil and gas drilling, fracking and production affect air and water quality and public health. This is a look at what that science says.

University of Colorado Boulder/NOAA, 2013: Study co-authored by chemist Jessica Gilman looked at 550 air samples taken in Northern Colorado in 2011 and found that oil and gas operations are emitting the building blocks of winter ozone pollution into air over Weld County and Fort Collins. Average propane levels in Fort Collins air were found to be higher than those in Houston.

University of Texas-Austin, 2012: Study by UT senior research scientist Cliff Frohlich showed that most recent earthquakes in the Barnett Shale region of North Texas occur within a few miles of injection wells used for the disposal of fracking waste. The study suggested a possible association between injection and earthquakes, but it did not prove there is a connection.

Cornell University, 2011: Study by Robert Howarth, Renee Santoro and Anthony Ingraffea examined the greenhouse footprint of natural gas extracted using fracking. It showed that high methane emissions occur at the time wells are being fracked, suggesting that greenhouse gas emissions from shale-gas extraction via fracking in Pennsylvania are greater than those of oil and gas extraction using older technology. Howarth, a Cornell evolutionary biologist, and Ingraffea, a Cornell environmental engineer, are controversial in part because, in the journal Nature, they advocated for an end to all fracking operations because leaking methane poses too great a climate change risk.

Duke University, 2011: Study co-authored by Stephen G. Osborn, Robert Jackson and others documented systematic evidence of methane contamination of drinking water associated with natural gas extraction in the Marcellus shale region of Pennsylvania.

Colorado School of Public Health, 2012: Researcher Lisa McKenzie found that people living near natural gas wells being fracked are exposed to brief periods of pollution leading to many different health effects, while also facing a possible

cancer risk because of benzene exposure. The study, conducted for Garfield County, is discredited by the oil and gas industry because of a lack of data and context and because the county declined to finalize the study.

Endocrine Disruption Exchange, 2011: Study co-authored by Theo Colborn of Paonia compiled a list of 632 chemicals used to extract natural gas. Of the 353 chemicals studied for health effects, more than 75 percent have effects on skin, eyes and the gastrointestinal system. About half could affect the nervous, immune and cardiovascular systems.

U.S. Environmental Protection Agency, Pavillion, Wyo., 2011: Following complaints about contamination of nearby domestic water wells, the EPA collected data from two deep monitoring wells near a natural gas field in Wyoming and discovered that ground water in an underlying aquifer contains compounds likely associated with oil and gas operations, including fracking. The U.S. Geological Survey is also monitoring the water there. The EPA s study is open for public comment through Sept. 2013.

U.S. Environmental Protection Agency, 2004: EPA concluded that fracking used in coalbed methane wells does not pose a significant threat to groundwater and does not need to be regulated.

What s next: The EPA, Colorado State University and the state of Colorado are either conducting work or about to begin work on studies addressing the environmental impacts of oil and gas development, including fracking.

The state announced this month that it will launch a study of how emissions from oil and gas operations on the Front Range affect air quality. CSU is conducting a similar three-year study in Garfield County. The EPA is working on a major study about how fracking impacts drinking water, with results expected in 2014.

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Chesapeake to Host EPA In Study of Fracking Risk
Wall Street Journal - Online

01/23/2013

...of its drilling sites as part of an investigation into the safety of hydraulic fracturing, an administration official said. The testing, which will involve water sampling before and after drilling takes place, will serve as a cornerstone of a yearslong EPA study to determine whether the process known as fracking poses a risk to water supplies. Another natural gas company, Range Resources Corp., also may allow the EPA to work at one of its drilling sites, although an agreement has been held...